### **RAW SEQUENCE LISTING**

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) no errors detected.

Application Serial Number:	10/543,/22
Source:	DG,
Date Processed by STIC:	6/14/06
	/ /

# ENTERED

# IAP7 Rec'd PCT/PTO 20 JUN 2006



PCT

RAW SEQUENCE LISTING DATE: 06/14/2006
PATENT APPLICATION: US/10/543,122 TIME: 10:29:10

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Output Set: N:\CRF4\06142006\J543122.raw

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3 <110> APPLICANT: Shenoy, Sudha
             Lefkowitz, Robert J.
      6 <120> TITLE OF INVENTION: Modified Trafficking Patterns for Arrestin and G-Protein-
Coupled
             Receptors via Arrestin-Ubiquitin Chimera
     9 <130> FILE REFERENCE: 186563/US/2 (469390-00352)
     11 <140> CURRENT APPLICATION NUMBER: US 10/543,122
C--> 12 <141> CURRENT FILING DATE: 2005-07-21
    14 <150> PRIOR APPLICATION NUMBER: US 60/442,403
     15 <151> PRIOR FILING DATE: 2003-01-24
    17 <160> NUMBER OF SEQ ID NOS: 45
    19 <170> SOFTWARE: PatentIn version 3.3
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    24 <213> ORGANISM: Artificial
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    27 <223> OTHER INFORMATION: Synthetic
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    32 <222> LOCATION: (1)..(1575)
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    39 ctg tac aag tcc gga ctc aga tct cga gct caa gct tcg aat tct gca
    40 Leu Tyr Lys Ser Gly Leu Arg Ser Arg Ala Gln Ala Ser Asn Ser Ala
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    43 gtc gac ggt acc acg cgc acc atg ggt gaa aaa ccc ggg acc agg gtc
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    44 Val Asp Gly Thr Thr Arg Thr Met Gly Glu Lys Pro Gly Thr Arg Val
                                    40
    47 ttc aag aag tcg agc cct aac tgc aag ctc acc gtg tac ttg ggc aag
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    48 Phe Lys Lys Ser Ser Pro Asn Cys Lys Leu Thr Val Tyr Leu Gly Lys
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    51 cgt gac ttt gtg gat cac ttg gac aaa gtg gat cct gtc gat ggt gtg
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    52 Arg Asp Phe Val Asp His Leu Asp Lys Val Asp Pro Val Asp Gly Val
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    55 gtg ctt gtg gat cct gac tac ttg aag gac cgg aaa gtg ttt gtg acc
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    56 Val Leu Val Asp Pro Asp Tyr Leu Lys Asp Arg Lys Val Phe Val Thr
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    59 ctc acc tgt gcc ttc cgc tat ggc cga gaa gac ctg gat gta ctg ggc
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    60 Leu Thr Cys Ala Phe Arg Tyr Gly Arg Glu Asp Leu Asp Val Leu Gly
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                    100
                                        105
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63 ctg tct ttc cgc aaa gat ctg ttc atc gcc acc tac cag gcc ttc ccc

Input Set : A:\186563-US-2.ST25.txt
Output Set: N:\CRF4\06142006\J543122.raw

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67 ccc ato	ccc aa	ic cca	cct	caa d	add	ccc	acc -	cac	cta	cad	gac	cga	cta	432
68 Pro Met														
		II PIO			-10	PLO	IIII .	Arg		GIII	Asp	Arg	цец	
69 130				135					140					
71 ctg aag	aag tt	g ggc	cag	cat o	gcc	cac	CCC	ttt	ttt	ttc	aca	ata	CCC	480
72 Leu Lys														<sub>20</sub> 1
73 145	-2		150					155						A
•										. `			160	
75 cag aat														528
76 Gln Asr	Leu Pr	o Cys	Ser	Val :	Thr	Leu	Gln	Pro	Gly	Pro	Glu	Asp	Thr	
77		165					170		-			175		
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79 ggg aag														576
80 Gly Lys	Ala Cy	s Gly	val.	Asp 1	Pne	GIu	ile .	Arg	Ala	Phe	Cys	Ala	Lys	
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84 Ser Ile														-
		.u Lys	DCI		-	nrg .	A511	ber	Val	_	пец	116	116	
85	195				200					205				
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89 210				215				•	220					•••
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91 gaa acc														720
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99 gtc aad 100 Val As 101 103 aga gt 104 Arg Va	n Val H 2 g tct g l Ser V 275	ic gtc lis Val :60 gtg aga /al Arg	acc l Thr a cag g Gln	aac a Asn tat Tyr	aat Asn gcc Ala 280	tct Ser 265 gac Asp	250 gcc Ala att Ile	aag Lys tgc Cys	acc Thr ctc Leu	gtc Val ttc Phe 285	aag Lys 270 agc Ser	255 aag Lys acc	atc Ile gcg	864
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99 gtc aac 100 Val As 101 103 aga gt 104 Arg Va 105 107 cag ta 108 Gln Ty 109 29 111 ccc ag 112 Pro Se 113 305 115 gac aa 116 Asp As 117 119 caa ga 120 Gln As 121 123 aag ga 124 Lys Gl	n Val H 2 g tct g 1 Ser V 275 c aag t r Lys C 0 t tcc a r Ser T c cca g n Pro G c acc a p Thr A g gtg c u Val I 355	ic gtc lis Val	acc l Thr a cag g Gln c gtg b Val c tgc 2 Cys 310 g cgt 3 Arg 5 gct 1 Ala a atc	aac a Asn tat Tyr gct Ala 295 aag Lys ggc Gly tcc Ser cta Leu	aat Asn gcc Ala 280 cag Gln gtg Val ctt Leu agc Ser gta Val 360	tct Ser 265 gac Asp ctt Leu tac Tyr gcc Ala acc Thr 345 tcc Ser	250 gcc Ala att Ile gaa Glu acc Thr ctt Leu 330 att Ile tac	aag Lys tgo Cys caa Gln ata Ile 315 gat Asp gtg Val	acc Thr ctc Leu Asp 300 acc Thr Gly Lys	gtc Val ttc Phe 285 gac Asp ccg Pro gag Glu aac Asn 365	aag Lys 270 agc Ser cag Clu Ctc Leu Gly 350 gtg Val	255 aag Lys acc Thr gtg Val Leu Lys 335 gcc Ala	atc ile gcg Ala tct Ser agt Ser 320 cac His aac Asn ctg Leu	864 912 960 1008 1056 1104
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Input Set : A:\186563-US-2.ST25.txt
Output Set: N:\CRF4\06142006\J543122.raw

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	141				420					425					430			
		agg																1344
		Arg	Leu		Leu	Lys	GLy	Met		Asp	Asp	Asp	Cys		Asp	Gln	Phe	
	145			435					440					445				
		tgc																1392
	148	Cys		Asp	Gln	Ile	Phe	Val	Lys	Thr	Leu	Thr	Gly	Lys	Thr	Ile	Thr	
	149		450					455			÷		460					
	151	ctc	gag	gtg	gag	CCC	agt	gac	acc	atc	gag	aat	gtc	aag	gca	aag	atc	1440
	152	Leu	Glu	Val	Glu	Pro	Ser	Asp	Thr	Ile	Glu	Asn	Val	Lys	Ala	Lys	Ile	
	153	465					4.70		,.			475.	e, it et .				480	
	155	caa	gat	aaq	gaa	qqc	att	cct	cct	qat	caq	caq	agg	ttq	atc	ttt	qcc	1488
		Gln																
	157		•	•		485				-	490					495		
		gga	aaa	caq	cta	gaa	gat	aat	cat	acc	cta	tct	gac	tac	aac	atc	cag	1536
		Gly																2000
	161	<b>-</b> 1	-1-	<b></b>	500			0_7	5	505		001		- , -	510		<b></b>	
		aaa	gag	tcc		tta	cac	cta	σta		cat	ctc	arra	aat		-ca		1581
		Lys													999	Jga		1501
	165	<b>L</b> y 5	014	515	1111	пси	1115	пси	520	Deu	mg	пси	nr 9	525				
		<210	י בו		ח אור				320					323				
		<211																
		<212				23												•
						70 mages 1												
		<213				AIL.	LLIC.	Laı										
		<220						~										
		<223					T.TON	: Syı	ntne	cic (	Const	cruci	C					
		<400					_,					_,	_			_		
		Leu	Leu	GIu	Phe		Thr	Ala	Ala	GIY		Thr	Leu	GIY	Met		GLu	
	179					5					10					15		
		Leu	Tyr	Lys		Gly	Leu	Arg	Ser		Ala	Gln	Ala	Ser		Ser	Ala	
	183				20					25					30			
	186	Val	Asp	Gly	Thr	Thr	Arg	Thr	Met	Gly	Glu	Lys	Pro	Gly	Thr	Arg	Val	
	187			35					40					45				
	190	Phe	Lys	Lys	Ser	Ser	Pro	Asn	Cys	Lys	Leu	Thr	Val	Tyr	Leu	Gly	Lys	
	191		50					55					60					
	194	Arg	Asp	Phe	Val	Asp	His	Leu	Asp	Lys	Val	Asp	Pro	Val	Asp	Gly	Val	
	195		_			_	70		_	-		75			_	-	80	
		Val	Leu	Val	Asp	Pro	Asp	Tyr	Leu	Lys	Asp	Ara	Lys	Val	Phe	Val	Thr	
	199				-	85	<b>.</b>	4		4	90	ر	4			95		
		Leu	Thr	Cvs	Ala		Ara	Tvr	Glv	Ara		Asp	Leu	Asp	Val		Glv	
	203			- 1	100		د		1	105					110		1	
					_ 2 3													

Input Set : A:\186563-US-2.ST25.txt
Output Set: N:\CRF4\06142006\J543122.raw

206 Leu Ser Phe Arg Lys Asp Leu Phe Ile Ala Thr Tyr Gln Ala Phe Pro 120 210 Pro Met Pro Asn Pro Pro Arg Pro Pro Thr Arg Leu Gln Asp Arg Leu 130 135 214 Leu Lys Lys Leu Gly Gln His Ala His Pro Phe Phe Thr Ile Pro 150 155 218 Gln Asn Leu Pro Cys Ser Val Thr Leu Gln Pro Gly Pro Glu Asp Thr 3 219 165 170 175 222 Gly Lys Ala Cys Gly Val Asp Phe Glu Ile Arg Ala Phe Cys Ala Lys 180 185 226 Ser Ile Glu Glu Lys Ser His Lys Arg Asn Ser Val Arg Leu Ile Ile 200 230 Arg Lys Val Gln Phe Ala Pro Glu Thr Pro Gly Pro Gln Pro Ser Ala 215 234 Glu Thr Thr Arg His Phe Leu Met Ser Asp Arg Arg Ser Leu His Leu 230 235 238 Glu Ala Ser Leu Asp Lys Glu Leu Tyr Tyr His Gly Glu Pro Leu Asn 245 250 🛶 242 Val Asn Val His Val Thr Asn Asn Ser Ala Lys Thr Val Lys Lys Ile ⁄ r • 260 265 270 246 Arg Val Ser Val Arg Gln Tyr Ala Asp Ile Cys Leu Phe Ser Thr Ala 275 280 250 Gln Tyr Lys Cys Pro Val Ala Gln Leu Glu Gln Asp Asp Gln Val Ser 295 290 254 Pro Ser Ser Thr Phe Cys Lys Val Tyr Thr Ile Thr Pro Leu Leu Ser 310 258 Asp Asn Pro Glu Lys Arg Gly Leu Ala Leu Asp Gly Gln Leu Lys His 325 330 262 Gln Asp Thr Asn Leu Ala Ser Ser Thr Ile Val Lys Glu Gly Ala Asn 340 345 266 Lys Glu Val Leu Gly Ile Leu Val Ser Tyr Arg Val Asn Val Lys Leu 355 360 270 Val Val Ser Pro Gly Gly Asp Val Ser Val Glu Leu Pro Phe Val Leu 375 274 Met His Pro Lys Pro His Asp His Ile Thr Leu Pro Arg Pro Gln Ser 390 395 278 Ala Pro Arg Glu Ile Asp Ile Pro Val Asp Thr Asn Leu Ile Glu Phe 405 410 282 Asp Thr Asn Tyr Ala Thr Asp Asp Asp Ile Val Phe Glu Asp Phe Ala 420 425 286 Arg Leu Arg Leu Lys Gly Met Lys Asp Asp Asp Cys Asp Asp Gln Phe 440 290 Cys Val Asp Gln Ile Phe Val Lys Thr Leu Thr Gly Lys Thr Ile Thr 455 460 294 Leu Glu Val Glu Pro Ser Asp Thr Ile Glu Asn Val Lys Ala Lys Ile 470 475 298 Gln Asp Lys Glu Gly Ile Pro Pro Asp Gln Gln Arg Leu Ile Phe Ala 485 490 302 Gly Lys Gln Leu Glu Asp Gly Arg Thr Leu Ser Asp Tyr Asn Ile Gln

Input Set : A:\186563-US-2.ST25.txt
Output Set: N:\CRF4\06142006\J543122.raw

303 306	Lys	Glu	Ser	500 Thr	Leu	His	Len	Val	505 Leu	Ara	T.e.n	Ara	Glv	510			
307			515				204	520	200	5	Dea	9	525				
	<210 <211																
	<212																
	<213				Art.	ifici	ial			241			,				
	<220						LUI			44.	•			4			
	<223				ORMA	TION:	Svr	ithet	ic								
	<220						. 0,1										
	<221				CDS												
321	<222	2> L(	CAT	ON:	(1)	(19	581)										
	<400																
324	ctg	ctg	gag	ttc	gtg	acc	gcc	gcc	ggg	atc	act	ctc	ggc	atg	gac	gag	48
325	Leu	Leu	Glu	Phe	Val	Thr	Ala	Ala	Gly	Ile	Thr	Leu	Gly	Met	Asp	Glu	
326	1				5					10					15		
	ctg																96
329	Leu	Tyr	Lys		Gly	Leu	Arg	Ser	Arg	Ala	Gln	Ala	Ser	Asn	Ser	Ala	
				20	-									30		•	
	gtc																144
	Val	Asp		Thr	Thr	Arg	Thr		Gly	Glu	Lys	Pro		Thr	Arg	Val	
334			35					40					45				
	ttc			-	_			_	_					_		_	192
	Phe		ьys	ser	ser	Pro		Cys	Lys	Leu	Thr		Tyr	Leu	GIY	Lys	
338	aat	50	+++	ata	~~+		55	~~~		~+~	~~+	60	~-~	~~+	~~+	~+~	240
	cgt Arg																240
342		мор	FIIC	Vai	тэр	70	пец	nsp	цуъ	vai	75	PIO	vai	Asp	GIY	80	
	gtg	ctt	at.a	gat	cct		tac	tta	aaq	gac		aaa <sup>,</sup>	ata	+++	ata		288
	Val																200
346					85	1101	-1-		-10	90					95		
348	ctc	acc	tqt	qcc	ttc	cqc	tat	aac	cqa	qaa	qac	cta	gat	qta		aac	336
	Leu																
350			_	100		_	-	-	105		-	•	-	110		-	
352	ctg	tct	ttc	cgc	aaa	gat	ctg	ttc	atc	gcc	acc	tac	cag	gcc	ttc	CCC	384
353	Leu	Ser	Phe	Arg	Lys	Asp	Leu		Ile	Ala	Thr	Tyr	Gln	Ala	Phe	Pro	
354			115					120					125				
	CCC																432
357	Pro	Met	Pro	Asn	Pro	Pro	Arg	Pro	Pro	Thr	Arg		Gln	Asp	Arg	Leu	
358		130					135					140					
	ctg																480
	Leu	гаг	Lys	Leu	GIY		His	Ala	His	Pro		Phe	Phe	Thr	Ile		
	145	<del>-</del>	++~	aa+	+~~	150	~+~				155					160	500
	cag																528
366	Gln	Hall	ьeu	PIO	165	ser.	val	inr	ьeu	170	PLO	ATG	Pro	GIU	175	THE	
	999	aad	acc	tat		at =	asa	+++	asa.		aas	acc	++~	+~+		222	576
	Gly																5/6
370	- J	~,5	u	180		<b>741</b>	215p	1110	185	116	~-A	n1a	r 11G	190	n a	Lys	
2,0									-00					- 20			

Input Set : A:\186563-US-2.ST25.txt
Output Set: N:\CRF4\06142006\J543122.raw

#### Invalid <213> Response:

Use of "Artificial" only as "<213> Organism" response is incomplete, per 1.823(b) of New Sequence Rules. Valid response is Artificial Sequence.

Seq#:1,2,3,4,5,6

VERIFICATION SUMMARY

DATE: 06/14/2006

PATENT APPLICATION: US/10/543,122

TIME: 10:29:11

Input Set : A:\186563-US-2.ST25.txt Output Set: N:\CRF4\06142006\J543122.raw

L:12 M:271 C: Current Filing Date differs, Replaced Current Filing Date